A STUDY OF OBSTETRIC OUTCOME AFTER PREVIOUS SPONTANEOUS ABORTION

Dissertation submitted to

THE TAMIL NADU DR.M.G.R. UNIVERSITY

in partial fulfillment of the requirements for the award of the degree of

M.D. (Obstetrics and Gynecology)
BRANCH - II

THE TAMIL NADU DR.M.G.R. UNIVERSITY
INSTITUTE OF OBSTETRICS AND GYNECOLOGY
GOVT. MADRAS MEDICAL COLLEGE & HOSPITAL,

CHENNAI – 600 003, INDIA.

MARCH 2008

BONAFIDE CERTIFICATE

This is to certify that this dissertation entitled "**A STUDY OF OBSTETRIC OUTCOME AFTER PREVIOUS SPONTANEOUS ABORTION"** is the bonafide original work done by **Dr.PRIYA SOMU,** Post graduate in Obstetrics and Gynecology , under my overall supervision and guidance in the Institute of obstetrics and gynecology Madras Medical College, Chennai, in partial fulfillment of the requirements of The Tamil Nadu Dr.M.G.R. Medical University for the award of **M.D.Degree in Obstetrics and Gynecology (Branch II).**

Prof. Dr.K. SARASWATHI, M.D., D.G.O
Director and Superintendent
Institute of Obstetrics and Gynecology
Madras Medial College,
Chennai - 600 008.

Dr.T.P.KALANITI M.D,
Dean
Madras Medial College,
Chennai - 600 003.

ACKNOWLEDGEMENT

I gratefully acknowledge and sincerely thank **Dr.T.P.Kalaniti M.D,** Dean, Madras Medical College and Research Institute, Chennai and **Dr.K.Saraswathi, M.D., D.G.O.,** Director and Superintendent, Institute of Obstetrics and Gynecology, Egmore for granting me permission to utilize the facilities of the Institute for my study.

I am Extremely grateful to our Director and Superintendent professor and Head of the Department, **Dr.K.Saraswathi, M.D., D.G.O.,** of the Institute of Obstetrics and Gynecology, Egmore, Chennai for her guidance and encouragement given in fulfilling my work.

I thank all former Directors of Institute of Obstetrics and Gynecology, **Prof.Dr.Madhini, M.D., D.G.O., MNAMS, Prof. (Retd). Dr.S.Dhanalakshmi, M.D., D.G.O., MNAMS** and **Prof.(Retd). Dr.Cynthia Alexander M.D., D.G.O.** for their valuable guidance.

I thank **Prof.Dr.Renuka Devi M.D., D.G.O.,** Deputy Superintendent, Institute of Obstetrics and Gynecology, Chennai for her valuable support.

I am extremely grateful to **Prof.Dr.C.Anjalakshi M.D., D.G.O., Ph.D.,** Institute of Obstetrics and Gynecology for her valuable guidance,

encouragement and Support throughout my study.

I am also grateful to all professors and assistant professors for their encouragement and guidance.

I thank our librarian (Retd.) **Mrs.Lalitha Thangam** for her immense help in Providing the literatures.

I thank all the medial and paramedical Staff for assisting me in completing the work.

Last but not the least I am thankful to all the patients who readily consented and co-operated in the work.

I - INTRODUCTION

Spontaneous pregnancy loss is a common event, it is the most common complication of pregnancy. About 70% of human conceptions fails to achieve viability and an estimated 50% are lost before the 1st missed menstrual period.

ABORTION

Abortion denotes the termination of a pregnancy by any means before the fetus is sufficiently developed to survive. According to RCOG, it is twenty weeks. However according to World health organization the cutoff point for the use of the term abortion lie at 22 weeks gestation(154 days) and also includes in this definition the fetal weight less than 500 grams.

ABORTUS

This term is applied to the products of conception which are passed through birth canal. By definition abortus means a fetus / embryo expelled from uterus during the first half of gestation (< 20 weeks) or < 500 grams of weight.

SPONTANEOUS ABORTION

Abortion occurring without medical or mechanical means to empty the uterus is referred to as spontaneous abortion.

BAD OBSTETRTIC HISTORY

The term bad obstetric history is defined as the present obstetric outcome which is likely to be modified adversely by the nature of previous obstetric disaster.

II - DISCUSSION

ABORTION

INCIDENCE

It is difficult to assess accurately the incidence of abortion, since many induced abortions are not reported[60]. Some very early abortion usually resemble delayed period. 10 percent of all pregnancy end in spontaneous abortion and another 10 percent are induced illegally, 75 percent of abortion occur before 16th week of pregnancy, of which 75 percent occur before the 8th week of pregnancy[12]

RISK OF RECURRENCE[54]

(i). The risk increases with each subsequent loss, After1 abortion -20 percent

After 2 abortion-28 percent, After 3 abortion-43 percent.

(ii). The risk increases with increasing maternal age

11.1% at 20 to 24 years, 11.9% at 25 to 29 years

15% at 30 to 34 years, 24.6% at 35 to 39 years, 51% at 40 to 44 years,

93.4% at 45 years or older.

AETIOLOGY

The etiology of spontaneous abortion is often complex and obscure. The causes of abortion can be classified as.

1. Fetal factors.
2. Maternal factors
3. Paternal factors
4. Unknown.
5. Immune factors

(1). FETAL FACTORS

50 percent of spontaneously expelled abortus have been thought to be chromosomally abnormal., about 60% are trisomies, trisomy 16 being the most common, 20 percent are found to have turners syndrome, 15% have triploidy[52,54].

Chromosomal abnormalities account for 3 to 8 percent of recurrent abortions.

a. Abnormal zygote development:

The most common morphological finding in early spontaneous abortion is the development of zygote, embryo, early fetus or at times placenta. In the Blighted ovum the embryo is degenerated or absent[40].

b. Aneuploid abortion:

Chromosomal anomalies are common among embryos and early fetuses that are aborted spontaneously.[40].

i. **Autosomal trisomy** is the most frequently identified chromosomal anomaly associated with first trimester abortion

ii. **Monosomy X (45** x) is the next most common abnormality.

iii. **Triploidy**: often associated with hydropic placental degeneration.

iv. **Tetraploid abortus** are rarely live born and aborted in early gestation.

v. **Chromosomal structural abnormality**.

vi. **Autosomal monosomy**-are extremely rare and is incompetent with life.

vii. **Sex chromosomal polysomy** (47, XXX) very unusual

c. Euploid abortion[40]

The reasons for euploid abortions are possibly (i) a genetic abnormality such as an isolated irritation or polygamy factors (ii) Various maternal factors (iii) Some paternal factors.

d. Interference with circulation:

Umbilical cord knots or entanglements may cause death of fetus and its expulsion.

e. Twins and Hydramnios

Rapid stretching of myometrium may cause abortion.

(2) . MATERNAL FACTORS (5%)

a. Infections[12,40]**.**

i. **Viral infections**: especially rubella and cytomegalovirus produces congenital malformations and abortion if contracted in early weeks of pregnancy. Viruses of hepatitis, influenza have got lethal action on fetus causing death and expulsion.

ii. **Parasites** (malaria) and protozoal infection (toxoplasmosis) may produce abortion if contracted in early weeks of pregnancy.

iii. **Spirochetes** : Causes abortion because of defective thickness of placental barrier.

Other organisms likely to cause abortion when contracted in early weeks of pregnancy are: Mycoplasma Hominis, Ureaplasma Urealyticum, Chlamydia Trachomatis, Listeria monocytogenes, group B streptococcus, and human immuno deficiency virus.

b. Maternal hypoxia and shock[15,40, 12,].

Patients having acute or chronic respiratory disease, heart failure, severe anemia, severe gastroenteritis or cholera are important causes of abortion.

c. Chronic debilitating disease[12,40]**.**

In early pregnancy chronic wasting diseases such as tuberculosis or carcinomatosis have seldom caused abortion.

d. Endocrine Abnormalities(10 to 15%)

i. Hypothyroidism

Thyroid auto antibodies were associated with increased incidence of abortion about 25 to 30 percent. Habitual abortions of 48 to 62 percent prevalence rate are found in patients with hypothyroidism[50].

ii. **Diabetes mellitus**

Early glucose control (within 21 days of conception) resulted in a similar abortion as those with nondiabetic[40]. Abortion rates of 25 to 30 percent have been reported in uncontrolled Diabetes[54].

iii. **Progesterone Deficiency**

Insufficient progesterone secretion by corpus luteum or placenta has been associated with abortion[40,50] .Raised LH levels in follicular phase (> 10 IU/Lon day 8) are associated with high pregnancy loss rates[54]. High LH levels in follicular phase affects oocytes maturation and may adversely affect implantation.

iv. **Nutrition**

There is no conclusive evidence that dietary deficiency of any nutrient is an important cause of abortion.[12,40].

e. Trauma

Direct trauma to the abdominal wall or operative trauma either vaginal or abdominal may be related to abortion[10]. Psychic- emotional upset or changes in environment may lead to abortion by affecting uterine activity. In Susceptible Individual even a minor trauma in the form of a journey, sexual intercourse in early weeks of pregnancy, internal examination may lead to abortion[12].

f. Toxic agents

Drugs

Tobacco-women who smoke 14 cigarettes a day have a double risk for euploid abortion[40].

Alcohol

Abortion rates were doubled in women drinking twice a week as compared with non drinkers[40]

Caffeine

Coffee consumption of more than five cups a day has high rate of abortion[40].

Contraception

Insitu intrauterine devices has increased incidence of septic abortion.

g. Acquired Uterine Defects

1. Uterine leimyomas-Submucosal and intramural leiomyomas – interferes with blastocyst implantation.
2. Uterine synechiae (Asherman syndrome) - abortion is caused due to insufficient endometrium to support implantation.

h. Developmental uterine defects.

Abortion is caused due to the consequence of abnormal mullerian duct formation or fusion. Common are bicornuate or septate uterus, which usually causes mid trimester abortion. Uterine anomalies account for 12 percent of cases of recurrent spontaneous abortion (Bennet1987) [54].

i. Cervical incompetence:

The cause of cervical incompetence is obscure or due to previous trauma to cervix, especially in course of dilatation and curettage, conization, cauterization or amputation.

It is characterized by painless cervical dilatation in second trimester with prolapse and ballooning of membranes in to the vagina, followed by rupture of membranes and expulsion of an immature fetus. Incidence of cervical incompetence is .05 to 1 percent; recurrence is 7 to 8 percent.

(3). **PATERNAL FACTORS**

Defective sperm,[contributing half the number of chromosomes to the ovum] may result in abortion, but it is difficult to prove.

(4). UNKNOWN FACTORS (40 TO 60%)

Inspite of numerous factors mentioned it is indeed difficult in a majority, to pin point the cause of abortion. About 25 percent of causes may result in abortion of unknown etiology.

(5) . IMMUNE FACTORS (5 TO 10%)

Autoimmune factors;

About 15 percent of the pregnancies with recurrent pregnancy loss patient have recognized auto immune cause.

APLA-syndrome[43]

In women with normal pregnancies, it has been reported to be as low as 0.2 percent for lupus anticoagulant and 2 percent for anticardiolipin antibody.

Patient with recurrent abortion the incidence of Lupus anticoagulant is 5 percent and anticardiolipin antibody is 20 percent. Pregnancy loss with APLA syndrome is 80 percent in which 60 percent occurred in first trimester.In a study conducted on 420 patients with 128 pregnancy losses by Carp et al in 1992 showed 95 losses were in first trimesters, 29 in second trimester and 4 in third trimester.

The most commonly detected antibodies are Lupus anticoagulant and

anticardiolipin antibody. Antiphospholipid antibodies are acquired antibodies targeted against phospholipids. The mechanism of pregnancy loss in these women is thought to involve placental thrombosis and infarction.

Three potential mechanism of antiphospholipid antibody –induced thrombosis[40] are,

1. Endothelial cells normally convert plasma membrane arachidonic acid into prostacyclin, which is released into the circulation and prevents platelet aggregation. Antiphospholipid antibody may predispose to thrombosis by inhibiting endothelial cells from producing prostacyclin.
2. Platelets normally convert plasma membrane arachidonic acid into thromboxane. Antiphospholipid antibody may increase thrombosis by enhancing thromboxane release.
3. During clotting, thrombin forms a complex on surface of endothelial cells with its receptor; thrombomodulin complex which is enzymatically active and can activate circulating protein C. The activated protein C binds with protein S on the surface of endothelial cells. The protein C / protein S Complex degrades circulating activated components of clotting cascade, factor Va and VII a.

Alloimmune factors

A number of women with recurrent pregnancy loss have been diagnosed as having an alloimmune cause. In those couples determined to have significant HLA-type homology, or women found to have antipaternal antibodies, were judged to represent an alloimmune disorder. Though some studies have found the presence of lymphocytotoxic antibodies and the presence of lymphocyte culture inhibitors to be associated [52] with recurrent pregnancy loss.

The conceptus as a semi allograft:

It is apparent that the conceptus does not behave like usual transplanted tissue or organ. Fetal cells are endowed with a paternal set of the six major HLA antigen and maternal HLA haplotype. The paternally derived HLA antigens would be expected to elevate a maternal immune response; however, HLA expression has not been detected on blastocyst tissue or placental syncytiotrophoblast of implanted conceptus. HLA-G, HLA variant has been detected on cytotrophoblast, might mediate immune rejection[52].

In as many as 50 percent of couples who have experienced repeated pregnancy loss, an evaluation including parenteral karyotyping, HSG, or

hysteroscopy, endometrial biopsy and culture and antiphospholipid antibody testing are negative. Because there is no known reason for repeated pregnancy loss in this substantial percentage of couples, alloimmune causes have been proposed[52,54].

MECHANISM OF ABORTION[23]

Almost 80 percent of diagnosed abortions occur before the second trimester of pregnancy.

Before 8 weeks:The pregnancy sac is extruded from the uterus in one mass.

8-14 weeks:Expulsion of the fetus commonly occurs leaving behind the placenta and membranes causing brisk haemorrhage.

Beyond 14 weeks; After that time the process resembles that of a labor in that, the membranes rupture at some stage during dilatation of cervix and the fetus and placenta born separately. As the uterus is not properly sensitized and its muscular action is less efficient, Some part of the chorion is therefore often retained and excessive hemorrhage is common.

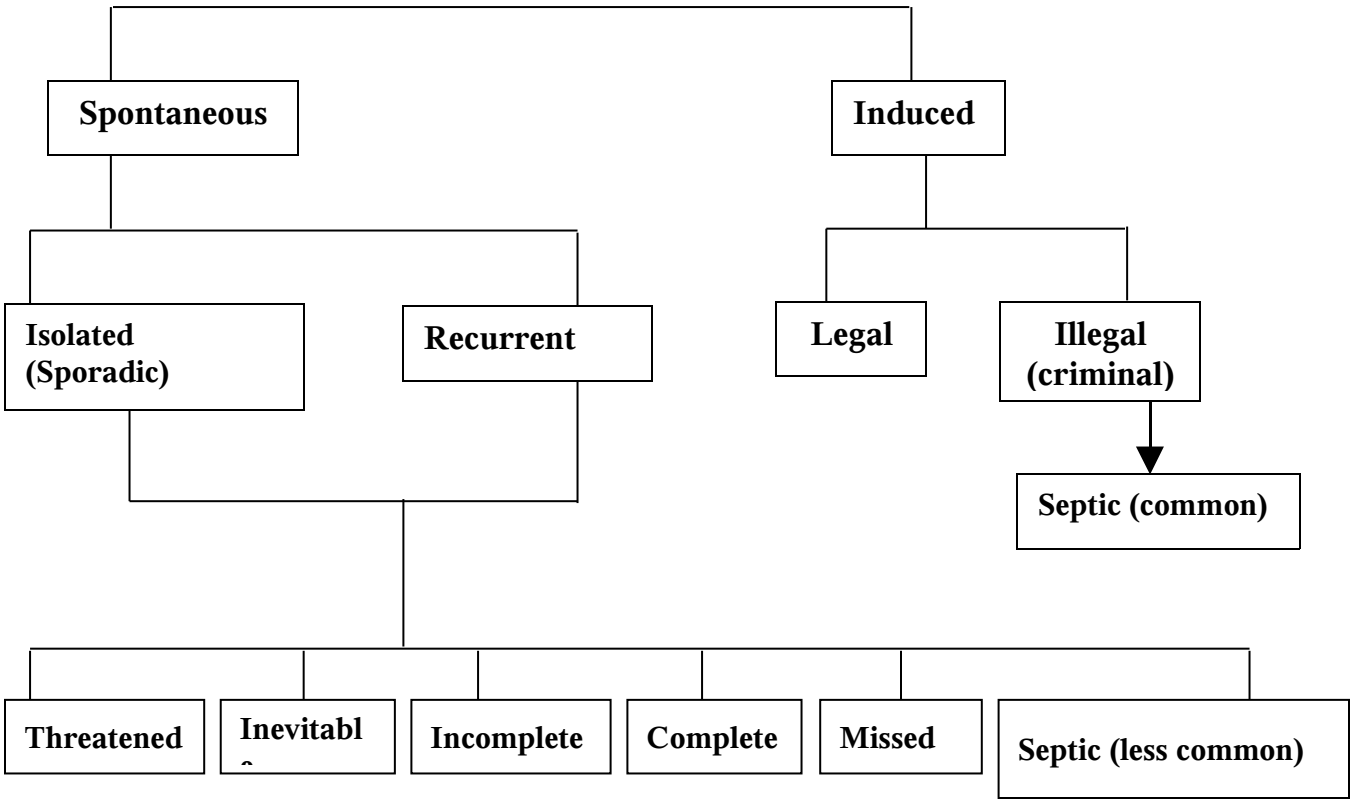
PATHOLOGY OF ABORTION[40]

Hemorrhage into deciduas basalis and necrotic changes in the tissue adjacent usually accompany abortion. The ovum becomes detached and stimulates uterine contractions that result in expulsion.when the sac is opened, fluid is commonly found surrounding a small maturated fetus or alternatively, there may be no visible fetus in the sac, the so called **blighted ovum**.

Blood or carneous mole is an ovum that is surrounded by a capsule of clotted blood. The small fluid containing cavity within appears compressed by thick walls of old blood clot.

Several outcomes are possible. The retained fetus may undergo maceration. The bones of skull collapse and the abdomen becomes distended with blood stained fluid. The skin softens and peels off in utero. Internal organs degenerate and undergo necrosis. Amniotic fluid may be absorbed when the fetus becomes compressed upon itself and desiccated to form a **fetus compressus**. Occasionally the fetus eventually becomes so dry and compressed that it resembles parchment so called fetus **papyraceous.**

ABORTION



CATEGORIES OF ABORTION[12]

1. Threatened abortion

It is a clinical entity where the process of abortion has started but has not progressed to a state from which recovery is impossible.

Clinical features

Bleeding per vaginum , pain

Diagnostic features

1. Uterine size corresponds to the periods of amenorrhea.

2. The uterus, cervix feels soft.
3. External OS is closed –in multipara internal OS must be closed as the external OS may be patulous in them.
4. Speculum examination reveals bleeding, if any comes through the external OS and absence of any local lesion in the cervix. However, the local lesions may co-exist.

2. Inevitable abortion

It is a clinical type of abortion where the change has progressed to a state from where continuation of pregnancy is not possible. Inevitability of abortion is signaled by gross rupture of membranes in the presence of cervical dilatation.

Clinical features

Vaginal bleeding, Increase of pain in the lower abdomen,Internal examination reveals dilatation of internal OS of the cervix through which the products of conception are felt.

3. Complete abortion

When the products of conception are expelled en masse, it is called

complete abortion.

Clinical features

Subsidence of abdominal pain, Vaginal bleeding becomes traces / absent. Internal exam 1. Reveals –uterus is smaller than the period of amenorrhoea and a little firmer. 2. Cervical Os is closed. 3. Bleeding is trace. 4. Examination of the expelled fleshy mass is found intact.

4. Incomplete abortion

When the entire products of conception are not expelled, instead a part of it is left inside the uterine cavity, it is called incomplete abortion.

Clinical features

History of expulsion of a fleshy mass per vaginum followed by Continuation of pain in lower abdomen, colicky in nature, although in diminished magnitude.

Persistence of vaginal bleeding of varying magnitude.

Internal examination –

1. Uterus is smaller than the period of amenorrhoea

2. Patulous cervical Os often admitting tip of finger.

3. Varying amount of bleeding.

4. On examination the expelled mass is found incomplete

5. Missed abortion

When the dead fetus had been retained inside the uterus for more than four weeks, it is called missed abortion.

Clinical features

Persistence of brownish vaginal discharge, Subsidence of pregnancy symptoms, cessation of uterine growth, Cervix feels firm,

Pregnancy test becomes negative, Real time ultrasound reveals an empty sac early in pregnancy Or the absence of fetal motion.

6.Septic abortion

Any abortion associated with clinical evidence of infection of uterus and its contents is called septic abortion.

Criteria for septic abortion

a . Rise of temperature of at least 100˚f for 24 hours.

b. Offensive or purulent vaginal discharge.

c. Lower abdominal pain and tenderness.

The microorganisms involved in the sepsis are usually those normally present in vagina- the microorganisms are anaerobic and aerobic, mixed infection is common.

Septic abortion is most common in illegally induced abortion because of improper methods used, incomplete evacuation and inadvertent injury to genital organs and adjacent structures

Grades of Septic Abortion

Grade1: The infection is localized to uterus.

Grade 2: Infection spreads beyond the uterus to involve the parametrium, tubes, ovaries and pelvic peritoneum.

Grade 3: Generalized peritonitis / or endotoxic shock or jaundice / acute renal failure.

Complications of Septic abortion

Immediate: Hemorrhage, Generalized peritonitis, endotoxic shock, acute renal failure, thrombophlebitis.

Remote: chronic pelvic pain and backache, secondary infertility, chronic debility.

7. Habitual / recurrent abortion

It is defined as three or more consecutive spontaneous abortions.Incidence is 0.34 percent.Percentage estimated frequencies of

diagnoses that can be made in patient with recurrent pregnancy loss[40].

Genetic	2-5 %
Endocrinological	5-29%
Anatomical	1-28%
Immunological	6-65%
Idiopathic	15-50%

Prognosis[9]

With the exception of antiphospholipid antibody and incompetent cervix, the apparent cure rate after three consecutive spontaneous abortion will range between 70 to 80 percent regardless of the treatment.

Woman with three or more spontaneous abortion are at increased risk of preterm delivery, placenta previa, breech presentation and fetal malformations.

INVESTIGATIONS NEEDED IN CASE OF ABORTION

1. Blood

Hemoglobin, Total count and differential count.

Blood grouping and Rh typing

Blood sugar-Fasting and post prandial

VDRL, HIV, HBsAG

2. Urine –routine and microscopy.

3. Special investigations

Hormonal assay-FSH, LH, Karyotyping, HLA typing,Cervical swabs-culture and

sensitivity, Anti cardiolipin antibody and Lupus anticoagulant, Hysterosalphingogram, Husband's semen analysis,Thyroid function test,USG.

PRETERM[15,40]

Definition-Infant born before 37 completed weeks of gestation

Prematurity:

This term was used in past to designate infants with birth weights under 2500gms. The term implies birth before maturity and should not be used.

Incidence - in developing countries it is to 30 to 40 %.

Etiology

1. Chorioamnionitis-accounts for 20 to 30 percent of all cases of preterm. The causative organism –Ureaplasma urealyticum, Gardenella vaginitis, Group B streptococcus, E.Coli, Mycoplasma hominis, Chlamydia trachomatis, Fusobacterium, Listeria Monocytogenes.

2. Infection outside the uterus-commonest cause is urinary tract infection.
3. Placental abnormalities-Such as battledore placenta, Circumvillate placenta, and marginal insertion of umbilical cord.
4. Anatomic abnormalities of uterus- Accounts for 1 to 3 percent. Commonest abnormality is septate and bicornuate uterus.
5. Fetal pathology- Neural tube defects and inborn errors of metabolism such as hyperbilurubinemia are some of the birth defects found to be associated with preterm labour.
6. Uterine over distention- Multifetal gestation and hydramnios are another relatively commonly causes.
7. Idiopathic

Warning symptoms of preterm

Low dull backache, Abdominal cramping,Increase or change in vaginal discharge

Fluid leaking from vagina,Uterine contractions that are 10 minutes apart or closer (may be painless)

Management of patient at risk of preterm labour

Education about preterm labour,Aggressive treatment of cervical and vaginal infection, Serial ultrasound examination, Coital abstinence.

limitation of physical activity.

Management of patients with warning symptoms

Bed rest, Antibiotics Prophylactic tocolytics, steroids and Search for placental insufficiency.

Management of patient with established preterm labour

Identification of patients that needs to be delivered

Maternal disease

Advanced labour

Fetal congenital abnormalities

Fetal growth retardation

Chromosomal anomalies.

INTRAUTERINE GROWTH RESTRICTION

It is said to be present in those babies whose birth weight is below 10 th percentile of the average for the gestational age.The incidence amoung the term babies is 5% and in postterm babies is about 15%.These babies are prone to asphyxia, hypoglycaemia, meconium aspiration syndrome, hypothermia, polycythemia, necrotizing entrocolitis.

Low birth weight baby

WHO defines these babies as one whose birth weight is less than 2500gms irrespective of the gestation age.Very low birth weight infants weigh 1500gms and extremely low birth weight infants weigh 1000gms or less.It is classified into premature and small for gestational age babies.The incidence is from 5% to40%.These babies are prone to asphyxia,hypothermia,pulmonary syndrome,heart failure,infection,jaundice, dehydration, anaemia, retinopathy of prematurity.

III - **REVIEW OF LITERATURE**

David.H.Thom[11] et al had evaluated the association between spontaneous abortion and subsequent adverse birth outcomes.

They concluded that women with **three and more spontaneous abortions were at higher risk of preterm < 37 weeks of gestation (95%),** placenta previa (95%), premature membranes rupture > 24 hours, Breech presentation (95%), congenital malformation (95%).

Eva Alberman[13] et al have compared birth weight of babies in patients with previous live birth and in patients with spontaneous abortion. The important observations were that the **mean birth weights of babies preceding a spontaneous fetal loss was lower than that of live births preceding another live births and that in the subgroup of women with repeated early losses, mean birth weight fell with increasing pregnancy order.**

Fabio Parazzini et al have analyzed the relation between induced abortion and subsequent abortion in 782 cases included in this study with 1543 controls who had given birth at term (>37 weeks). They concluded that there **was no strong association between induced and spontaneous**

abortion.

Inee de hass[21], MD et all did a case control study of spontaneous preterm birth. In this study the risk factors analyzed were prior preterm delivery, smoking during pregnancy, pregnancy weight < 61.5 kgs and H/O prior induced abortion.. They found out that **patients with ≥ 2 or more number of pregnancies, spontaneous abortion, induced abortion, prior preterm significantly increased the risk of spontaneous preterm birth,** secondly H/O cigarette smoking particularly women who smoked > 6 to 10 cigarettes per day also increased the risk of spontaneous preterm births.

JoaquinE.Paz et al did a study to find out the association between previous fetal loss and fetal malformation and low birth weight in the subsequent pregnancies. They found out that multiple malformation, Downs syndrome, anencephaly, Spina bifida, Talipus Equinovarus, Congenital dislocation of hip and low birth weight are associated with previous fetal loss and they finally suggested **that abortion or a still birth in a previous pregnancy should be taken into consideration when the risk of malformation or low birth weight in a subsequent pregnancy is assessed.**

S.A.Brigham[56]et al did a study to find out how many fetuses

continued pregnancy and survived in women with idiopathic recurrent miscarriage patients with idiopathic recurrent miscarriage.**They also showed that there is decrease in pregnancy success rate with increasing number of previous abortion.**

Olga Basso[42] et al did a study to evaluate the risk of preterm delivery, low birth weight and growth retardation following spontaneous abortion.The abortion cohort had a higher risk of preterm (95%) premature delivery 3 percent, low birth weight 7.5 percent and growth retardation 10.2 percent**. They concluded that spontaneous abortion is associated with preterm delivery, low birth weight, IUGR, in the subsequent pregnancies.**

P.W.Reniald[44]**, R.W.Beard** et al did a study in which they have compared the outcomes of pregnancies progressing beyond 28 weeks of gestation in women with a history of recurrent miscarriage. Out of the 97 women who had 3 miscarriages 30 percent were small for gestational age, 28 percent were born preterm and perinatal mortality was 161/1000 births, all the parameters are significantly increased above the prevalence for a normal obstetric population.

Stefanos.M.Pantelakis[58] et al did a study to find out the influence of induced and spontaneous abortions on the outcome of subsequent

pregnancies**. They concluded that the percentage of still births and premature births among women with previous abortions, induced or spontaneous was doubled than that in the control group.**

Stephen.C.Schoenbaume[58] et al did a study to find out the outcome of delivery following an induced or spontaneous abortion. They have compared women with one prior induced or spontaneous abortion with women of similar gravidity or parity with no prior pregnancy losses. They found that women with **a single prior induced abortion have no increased risk of poor outcome in the next pregnancy after 27 weeks. In contrast offspring's of second gravidas with a proximate spontaneous abortion had an increased frequency of short gestations, low birth weights, low apgar score, and congenital malformation, indicating that these women are at high risk for subsequent poor late pregnancy outcomes.**

Eva Alberman[13], Eve Roman et al The most important observations were that the **mean birth weight of babies preceding a spontaneous fetal loss was lower than that of livebirths preceding another livebirth, and that in the subgroup of women with repeated early losses, mean birth weight fell with increasing pregnancy order**

M.Y. El-Zibdeh[39] et al did a study to find out whether dydrogesterone

is useful in reduction of recurrent spontaneous abortion one hundred and eighty Treatment was started as soon as possible after confirmation of pregnancy and continued until the 12th gestational week. All women received standard supportive care. Abortions were significantly ($p \leq 0.05$) less common in the dydrogesterone group (13.4%) than in the control group (29%);There were no differences between the groups with respect to pregnancy complications or congenital abnormalities. They concluded that **, hormonal support with dydrogesterone can increase the chances of a successful pregnancy in women with a history of recurrent spontaneous abortion.**

DaVanzo[9], a L Hale, b A Razzaque, et al did a study to estimate the effects on pregnancy outcomes of the duration to the preceding interpregnancy interval (IPI) and type of pregnancy outcome that began the interval preceding pregnancy outcome .They concluded that women whose pregnancies are between 15 and 75 months after a preceding pregnancy outcome have a lower likelihood of fetal loss than those with shorter or longer IPIs.

Renato Seracchioli M.D[55]. Linda Manuzzi M.D.et al did a study to assess the risks and outcome of pregnancies and deliveries after laparoscopic

myomectomy **. They concluded that LM, performed by an expert surgeon, can restore reproductive capacity, allowing patients to have a successful pregnancy.**

M.J.N.C.Keirse, R.W.Rush et al did a study about risk of pre-term delivery in patients with previous pre-term delivery and/or abortion**. Patients with a history of two or more abortion had an increased risk of spontaneous pre-term labour and delivery in future** pregnancies. This increased risk related mainly to previous second trimester abortions and not to previous first trimester abortions. Patients with one previous spontaneous pre-term labour and delivery had a 37 per cent risk, and those with two or more pre-term deliveries a 70 per cent risk of again delivering pre-term. There appeared to be no beneficial effect of cervical suture on the incidence of pre-term delivery in these patients.

Ulla Breth Knudsen[68] Villy Hansen, did a study on the prognosis of a new pregnancy following previous spontaneous abortions. The risk for a clinical spontaneous abortion in a pregnancy following 0 to 4 consecutive spontaneous abortions was estimated**.**

The overall risk for spontaneous abortion was 11% and the risk for a spontaneous abortion was 16, 25, 45 and 54% after 1 to 4 previous

consecutive spontaneous abortions, respectively. For women over 35 years, the risk for spontaneous abortion was significantly increased, but the almost identical abortion rates after repeated abortions in both young and old women indicate a risk factor which is not age-related.

Eyal Sheiner[13], Amalia Levy et al did a study to examine the association between spontaneous consecutive recurrent abortions and pregnancy complications such as hypertensive disorders, abruptio placenta, intrauterine growth restriction and cesarean section (CS) in the subsequent pregnancy. A population-based study comparing all singleton pregnancies in women with and without two or more consecutive recurrent abortions was conducted.. Results: Using a multivariate analysis, with backward elimination, the following complications **were significantly associated with recurrent abortions—advanced maternal age, cervical incompetence, previous CS, diabetes mellitus, hypertensive disorders, placenta previa and abruptio placenta, mal-presentations and PROM. A higher rate of CS was found among patients with previous spontaneous consecutive recurrent abortions (15.9% versus 10.9%; P <** 0.001). Another multivariate analysis was performed, with CS as the outcome variable, controlling for confounders such as placenta previa, abruptio placenta, diabetes mellitus, hypertensive disorders, previous CS, mal-presentations,

fertility treatments and PROM. A **history of recurrent abortion was found as an independent risk factor for CS (** 95% ; P < 0.001**). .They concluded that a significant association exists between consecutive recurrent abortions and pregnancy complications such as placental abruption, hypertensive disorders and CS. This association persists after controlling for variables considered to coexist with recurrent abortions. Careful surveillance is required in pregnancies following recurrent abortions, for early detection of possible complications.**

G. Zlopaša, S. Škrablin, et al did a study to compare reproductive outcome in women with uterine anomalies and women with a normal uterus, and evaluate the effect of resectoscope metroplasty results: **Uterine anomalies were associated with higher rates of spontaneous abortion, preterm delivery, intrauterine growth retardation, breech presentation, and cesarean delivery (Pb0.001). c**ompared with their previous pregnancies, the abortion rates were lower and delivery rates were higher in women who conceived following hysteroscopic metroplasty**.They concluded that resectoscope metroplasty significantly improved pregnancy outcome in women with uterine anomalies**.

T. Tomaževič[64], H. Ban, T. Premru-Sršen, et al did a study **on Small**

uterine septa (AFS Class 6) represent an important risk variable for preterm birth and spontaneous abortion They compared pregnancy outcomes before and after hysteroscopic dissection of small and large uterine septa. Besides large uterine septa, small uterine septa represent an important hysteroscopically preventable risk variable for preterm birth and spontaneous abortion.

J. I. Puyenbroek[46] and L. A. M. Stolte et al did a study on The relationship between spontaneous and induced abortion and the occurrence of second-trimester abortion in subsequent pregnancies. It was concluded that the relationship between a spontaneous abortion and a second-trimester abortion in a subsequent pregnancy is far more significant. In the latter cases an inherent fetal, idiopathic wastage syndrome is thought to be present causing both the first- and the second-trimester abortion.

IV- AIM AND OBJECTIVES

Aim

The aim of our study is to estimate the risk of the Preterm delivery, low birth weight, IUGR, recurrence of abortion, still birth, IUD, PROM in

patients with previous spontaneous abortions or any other adverse outcome in women with previous spontaneous abortions.

Objectives

1. To test the hypothesis that previous unfavourable pregnancy outcome increases the risk of adverse outcome in the present pregnancy.
2. To look for association between previous spontaneous abortion and preterm delivery, low birth weight, IUGR, recurrence of abortion, still birth, IUD, PROM in subsequent pregnancies.

V - MATERIALS AND METHODS

Sample size- 500 cases

Source of Data

This prospective study was carried out in the Institute of Obstetrics and Gynecology at Madras Medical College, Chennai .

Period of study-2006 October to 2007October.

Inclusion criteria

1. In this study patients with history of spontaneous abortion, irrespective of cause and period of gestation were included.
2. Age group-18 to 35 years.
3. Patients with 1 and/or more than 1 spontaneous abortion.
4. Patients with previous live birth, followed by spontaneous abortion.

Exclusion criteria

1.Patients with induced abortion

2. History of spontaneous abortion with twin gestation

3. History of PIH, Chronic hypertension, GDM, Juvenile DM, heart disease, anemia,

4. History of carcinoma

5. History of HIV/HBsAG /VDRL/Twins.

VI - RESULTS

Study Design:

A Case –control clinical prospective study with 500 patients with history of previous spontaneous abortion(Cases group) and 500 patients

with history of previous full term normal deliveries no abortion (control group) was undertaken to compare the obstetric outcomes between the two groups.

Table 1: Age distribution of patients

Age in year	Control		Case		Combined	
	No	%	No	%	No	%
18-20	21	4.2	77	15.4	98	9.8
21-25	294	58.8	286	57.2	580	58.0
26-30	154	30.8	115	23.0	269	26.9
31-35	31	6.2	22	4.4	53	5.3
Total	500	100.0	500	100.0	1000	100.0
Mean ± SD	25.02±3.34		23.84±3.39		24.44±3.42	

From table -1 the mean age of patients among cases and controls were 23.84 and 25.02 respectively. Indicating that both the groups were distributed predominantly in the 21-25 age group. The same is depicted pictorially in the fig-1

Table 2: Gravida distribution of patients among cases group and control group

Gravida	Control		Case	
	No	%	No	%
0	-	-	-	-
1	-	-	-	-

2	386	77.2	378	75.6
3	47	9.4	89	17.8
4	10	2.0	22	4.4
5	5	1.0	11	2.2
6	2	0.4	-	-
Total	500	100.0	500	100.0

Table 2 shows the distribution of the patient in both the control group and the cases with respect to the gravida status of the patients. It can be seen clearly that majority are belonging to 2nd gravida among both the groups. The same is depicted in the fig 2

Table 3:Distribution of cases group with respect to the number of previous abortions

Previous history of abortions	Number	%
1	382	76.4
2	86	17.2
3	21	4.2

4	11	2.2
Total	500	100.0

Table 3 shows the distribution of cases with respect to the number of previous abortions. 76.4% of patients had 1 previous abortions, 17.2 percent of patients had previous 2 abortions, 4.2 percent of patients had 3 previous abortions and 2.2 percent of patients had previous 4 abortions. The same is depicted pictorially in Figure 3

Table 4: Mode of Termination of pregnancy

Mode of termination of pregnancy	**Control (n=500)**		**Case (n=500)**		**P value**
	No	%	No	%	
1.FTND	481	96.2	224	44.8	<0.001
2.LSCS-Emergency	8	1.6	166	33.2	<0.001
3.Assisted breach	1	0.2	12	2.4	0.002
4.Outlet forceps	1	0.2	7	1.4	0.069
5.Spontaneous expulsion	9	1.8	10	2.0	0.817
6.Incomplete abortion	0	-	44	8.8	<0.001
7.Spontaneous	0	-	37	7.4	<0.001

abortion					

Table 4 compares the mode of termination of pregnancies between the cases and the controls. 96.2% of controls had normal deliveries and only 44.8 % of cases had normal deliveries. 1.6 percent of controls had LSCS and 33.2 percent of cases had LSCS. 0.2 percent of controls had assisted breech delivery, and 2.4 percent of cases had assisted breech delivery. 8.8 percent of cases had incomplete abortion and 7.4 percent of cases had spontaneous abortion. The same is depicted pictorially in figure 4.

Table5:Comparision of Obstetric outcome between cases and controls

outcome	**Control (n=500)**		**Case (n=500)**		**P value**
	No	%	No	%	
1.Full Term	467	93.4	323	64.6	<0.001
2.Post term	3	0.6	10	2.0	0.050
3.Pre term	31	6.2	86	17.2	<0.001
4.PROM	57	11.4	159	31.8	<0.001
5.IUGR	7	1.4	17	3.4	0.123
6.Still Birth	0	-	1	0.2	1.000
7.IUD	10	2.0	16	3.2	0.233
8.Abortion	0	-	81	16.2	<0.001

Table 5 compares the Obstetric outcome between the controls and

the cases. The number of patients who reached full term among control group was 93.4% and cases were 64.6%. The number of patients who delivered preterm among control group was 6.2 percent and among cases were 17.2 percent . The percentage of patients who had PROM among control group were 11.4 percent and among cases were 31.8 percent. The same is depicted pictorially in fig 5.

Table 6: Indication for LSCS / forceps delivery

Indication for LSCS/forceps	Control (n=500)		Case (n=500)	
	No	%	No	%
Total LSCS	8	1.6	167	33.4
Abruptio placenta	0	-	1	0.2
Baby –asphyxia	0	-	1	0.2
BOH	0	-	1	0.2
Breech	0	-	6	1.2
Breech presentation	0	-	2	0.4
Breech presentation/prom	0	-	3	0.6
Breech with oligohydramni	0	-	1	0.2
Breech/ BOH	0	-	1	0.2
Cord presentation	0	-	1	0.2
CPD	4	0.8	42	8.4
CPD/big baby	0	-	1	0.2
CPD/breech	0	-	1	0.2
CPD/fetal distress	0	-	2	0.4
CPD/postdated	0	-	1	0.2
CPD/prom	0	-	6	1.2
Extended breech	0	-	3	0.3
Failure of maternal force	1	0.2	4	0.8
Fetal distress	2	0.4	53	10.6
fetal distress/prom	0	-	3	0.6
IUGR/fetal distress	0	-	1	0.2
IUGR/oligohydramnios	0	-	1	0.2
IUGR/PROM	0	-	1	0.2
Non progression of labour	0	-	14	2.8
Obstructed labour	1	0.2	1	0.2
Oligohydramnios	0	-	4	0.8
Oligohydramnios /PROM	0	-	1	0.2

Oligohydramnios/postdated	**0**	**-**	**2**	**0.4**
Persistant occipito posterior	**0**	**-**	**3**	**0.6**
Severe oligohydramnios	**0**	**-**	**3**	**0.6**
Transverse lie	**0**	**-**	**1**	**0.2**
Unstable lie	**0**	**-**	**2**	**0.4**
Inference	**Number and Proportion of Indications are more in Cases when compared to controls with P<0.001**			

Table 6 shows the indication for LSCS/ Forceps among both cases and controls. Among control group 1.6 percent of patients had forceps/LSCS. Whereas 33.4 percent of patients among cases group had forceps/LSCS. The same is depicted in figure 6

Table 7: Correlation of obstetric indices and outcomes among the control group

outcome	Control				
	Total	G2P1L1	G3P2L2	G4P3L3	G5P4L4
Term	467	359	92	9	7
Preterm	31	27	3	1	0
IUGR	7	6	0	1	0
PROM	57	45	8	2	2
Post term	3	2	1	0	0
Still birth	0	0	0	0	0
Abortion	0	0	0	0	0

This table shows the depiction of various obstetric indices and their pregnancy outcomes in the control group.

Table 8: Correlation of Obstetric indices and outcomes among the cases group

Outcome (n=500)	Cases				
	Total	G2A1	G3A2	G4A3	G5A4
Term	323	268	45	7	3
Preterm	86	68	16	1	1
IUGR	17	11	5	1	0
PROM	159	126	28	2	3
Post term	10	10	0	0	0
Still birth	1	0	0	0	0
Abortion	81	33	27	14	7

This table shows the distribution of various obstetric indices and their pregnancy outcomes in the case group.

Table 9: Comparison of pregnancy outcomes between patients having previous one abortion(G2A1- Cases group) and having previous 1 live birth(G2P1L1-Control group)

Outcome	Control (G2P1L1) (n=386)		Cases (G2A1) (n=378)		P value
	No	%	No	%	
1.Fullterm	359	67.1	268	70.9	0.256
2.Preterm	27	6.9	68	17.9	<0.001
3.IUGR	6	1.5	11	2.9	0.204
4.PROM	45	11.7	126	33.3	<0.001
5.Post term	2	0.5	10	2.6	0.018
6.Still birth	0	0.0	0	0.0	-
7.Abortion	0	0.0	33	8.7	<0.001

Table 9 shows the comparison of pregnancy outcomes between patients having one previous abortion(cases group) and the patients having one previous live birth(control group). 70.9 % of patients belonging to the cases group had full term deliveries and 67.1 % of

patients belonging to the control group had full term deliveries. 33.3 percent had PROM among cases group and 11.7 % of patients belonging to the control group had PROM. 8.7 percent of patients of patients belonging to the cases group had abortions and none had an abortion among control group. The same is shown in Fig 9

Table 10: Comparison of pregnancy outcomes between patients having previous two abortions(G3A2- Cases group) and having previous 2 live births(G3P2L2 -Control group)

Outcome	Control (G3P2L2) (n=97)		Cases (G3A2) (n=89)		P value
	No	%	No	%	
1.Fullterm	92	94.8	45	50.6	<0.001
2.Preterm	3	3.1	16	17.9	0.001
3.IUGR	0	0.0	5	5.6	0.024
4.PROM	8	8.2	28	31.5	<0.001
5.Post term	1	1.0	0	0.0	0.337
6.Still birth	0	0.0	0	0.0	-
7.Abortion	0	0.0	27	30.3	<0.001

Table 10 shows the comparison of pregnancy outcomes between patients having previous two abortions(G3A2- Cases group) and having previous 2 live births(G3P2L2 -Control group)94.8 percent of patients in the control group had reached full term whereas only 50.6 percent of patients

in the cases group had reached full term. The preterm deliveries among the control group and the cases group were 3.1 and 17.9 percent respectively. The patients who had PROM among control group and cases group were 8.2 percent and 31.5 percent respectively. The same is depicted in figure 10.

Table 11: Comparison of pregnancy outcomes between patients having previous three abortions(G4A3-Cases group) and having previous 3 live births(G4P3L3-control group)

Outcome	Control (G4P3L3) (n=10)		Cases (G4A3) (n=22)		P value
	No	%	No	%	
1.Fullterm	9	90.0	7	31.8	0.002
2.Preterm	1	10.0	1	4.5	0.534
3.IUGR	1	10.0	1	4.5	0.534
4.PROM	2	20.0	2	9.1	0.537
5.Post term	0	0.0	0	0.0	-
6.Still birth	0	0.0	0	0.0	-
7.Abortion	0	0.0	14	63.6	<0.001

Table 11 shows the comparison of pregnancy outcomes between patients having previous three abortion(G4A3-Cases group) and having previous 3 live birth(G4P3L3-control group).90 percent of patients

belonging to the control group had full term deliveries whereas only 31.8 % of patients belonging to the cases group had full term deliveries. 63.6 % of patients belonging to the cases group had abortions whereas none of the patients belonging to the control group had abortions. The same is depicted graphically in figure 11

Table 12: Comparison of pregnancy outcomes between patients having previous four abortions(G5A4-cases group) and having previous four live births(G5P4L4-control group)

Outcome	Control (G5P4L4) (n=7)		Cases(G5A4) (n=11)		P value
	No	%	No	%	
1.Fullterm	7	100.0	3	27.3	0.004
2.Preterm	0	0.0	1	9.1	1.000
3.IUGR	0	0.0	0	0.0	-
4.PROM	2	18.2	3	27.3	1.000
5.Post term	0	0.0	0	0.0	-
6.Still birth	0	0.0	0	0.0	-
7.Abortion	0	0.0	7	63.6	0.013

Table 12 shows the comparison of pregnancy outcomes between patients having previous four abortion(G5A4-cases group) and having

previous four live birth(G5P4L4-control group)100% of patients belonging to the control group had full term deliveries and only 27.3 % of patients belonging to the cases group had full term deliveries. 63.6% of patients belonging to the cases group had abortions whereas there were no abortions in the control group. The same is shown in fig 12

Table 13: Comparison between birth weight and the number of previous live births among the control group

Obstetric index	Total Number	Low birth weight <2.5kg	%	Birth Weight Mean ± SD
G2P1L1	386	73	18.9	2.77±0.48
G3P2L2	97	21	21.6	2.75±0.42
G4P3L3	10	3	30.0	2.58±0.48
G5P4L4	7	2	28.6	3.04±0.79
Total	500	99	19.8	2.76±0.47

Table 13 shows the comparison between birth weight and the number of previous live births among the control group. Among patients who had one previous delivery the incidence of low birth weight were 18.9 percent, among patients who had 2 previous live births the incidence of low birth weight were 21.6%, among patients who had 3 previous live births the

incidence of Low birth weight were 30%, among patients who had previous 4 live births the incidence of low birth weight were 19.8 percent. The same is depicted pictorially in fig 13..

Table 14: Comparison between the birth weight and the number of previous abortions

Obstetric index	Total Number	Low birth weight Babies		Birth weight
		No	%	Mean ± SD
G2A1	378	33	8.7	2.46 ± 0.95
G3A2	89	27	30.3	1.73 ± 1.30
G4A3	22	14	63.6	0.98 ± 1.35
G5A4	11	7	63.6	0.87 ± 1.35
Total	500	81	16.2	2.24 ± 1.13

Shows the comparison between the number of previous abortions and the low birth weight among the cases group. Among patients who had one previous abortion the incidence of low birth weight was 8.7% and the mean birth weight were 2.46 ±0.95 kgs. Among patients who had two previous abortions the incidence of low birth weight babies were 30.3% and the mean birth weight was 1.73 ± 1.3 kgs. Among patients who had three previous abortions the incidence of low birth weight babies were 63.6% and the mean weight was 0.98 ± 1.35 kgs, Among patients who had four previous abortions the incidence of low birth weight babies were 63.6% and

the mean birth weight was 0.87 ± 1.35 kgs. The birth weight decreases as the number of previous abortions increases and that the incidence of low birth weight increases as the number of previous abortions increases.

Table 15: Comparison between patients having pain per abdomen, discharge per vaginum and the mode of delivery between both groups

PA/DA	Number	LSCS-Em	FTND	Assisted breach	Outlet forceps	Sp. expulsion	Incomplete abortion	Sp. abortion
Pain abdomenPA								
Control	304	290	5	1	1	7	0	0
Cases	495	223	162	12	7	10	44	37
Discharge per vaginumDV								
Control	58	50	4	0	0	4	0	0
Cases	217	90	74	2	0	4	35	12

Table 15: Shows the comparison between the cases and the controls having pain abdomen, discharge per vaginum and their obstetric outcome. This suggests that antenatal pain abdomen during the first trimester had very little significance in patients having non previous abortions, whereas in patients who has history of previous abortions about 13.36% of patients had abortions. Similarly antenatal complaint of discharge pervaginum has very little significance in the patients having no previous abortions. In patients

who have history of previous abortions about 21.65% of patients had abortions.

VII - STATISTICAL METHODS

Chi-square and Fisher Exact test has been used to test the significant proportion of study characteristics between two groups.

1.Chi-Square Test

$\chi^2 = \frac{\sum (Oi - Ei)^2}{Ei}$, Where Oi is Observed frequency and Ei is Expected frequency

2. Fisher Exact Test

Fisher Exact Test statistic= $\sum p = \frac{(a+b)!(c+d)!(a+c)!(b+d)!}{n!} \frac{1}{\sum a!b!c!d!}$

3. Significant figures

Suggestive significance $0.05<P<0.10$

Moderately significant $0.01<P \leq 0.05$

Strongly significant $P \leq 0.01$

Statistical software:

The Statistical software namely SPSS 11.0, Stata 8.0,Systat 11.0, Medcalc 9.0.1 and Effect Size calculator were used for the analysis of the data and Microsoft word and Excel have been used to generate graphs, tables etc.

References:

1. Bernard Rosner (2000), Fundamentals of Biostatistics, 5th Edition, Duxbury.
2. M. Venkataswamy Reddy (2002), Statistics for Mental Health Care Research, NIMHANS publication, INDIA

VIII - DISCUSSION

There were 500 cases of spontaneous abortion in this study. There were 500 controls in this study. **The outcome has been analysed with respect to the following factors**

1. Age of the patient

   Percentage of patients having

2. Successful pregnancies (Full term normal deliveries)
3. Preterm deliveries
4. Intrauterine growth retardation
5. Premature rupture of membranes
6. Post term pregnancies
7. Recurrent abortions
8. Low birth weight
9. Cervical incompetence

Table 1

Out of the 500 cases and 500 controls. 58.8 % belonged to 20-25 years of age among the control group and among controls 57.2 percent of patients belonged to the same age group. 30.8% belonged to 26 -30 years among control group and 23.8 % belonged to 26 to 30 years among cases

group the rest belonged to the 18-20 years group and the 26-35 years group. The age distribution among both controls and cases were similar**. There was no statistical difference between the two groups regarding age distribution.**

Table 2

Shows the distribution of the gravidas among both the cases and the control group. 77.2 % of the control group belonged to the second gravida and 75.6 % of the cases group belonged to the second gravida. 9.4 % of the control group belonged third gravida and 17.8 percent of the cases group belonged to third gravida. **The distribution of gravidas among controls and cases did not differ significantly.**

Table 3

Out of the 500 cases studied there were 76.4 % of patients having one abortion, 17.2 % of patients having two abortions, 4.2 % of patients with 3 abortions and 2.2 percent of patients with 4 abortions.

Table 4

Compares the mode of termination of pregnancy between the cases and the controls. 96.2% of controls had normal deliveries and only 44.8 % of cases had normal deliveries. The difference is statistically

significant<0.001**.This shows that the percentage of patients having successful term pregnancies is less with patients having prior abortion.**

Edem E.Ekmo et al[14] in their study of 176 women enrolled showed that percentage of women having prior abortion had less number of patients reaching to successful outcome.

1.6 percent of controls had LSCS and 33.2 percent of cases had LSCS **The difference is statistically significant** ,0.001.The incidence of LSCS were high in the cases group. 0.2 percent of controls had assisted breech delivery, and 2.4 percent of cases had assisted breech delivery **The difference is statistically significant 0.002,** 8.8 percent of cases had incomplete abortion and none of the control group had abortions the difference is **statistically significant <0.001.** 7.4 percent of cases had spontaneous abortion and none belonging to the control group had abortions, the difference is statistically significant **<0.001 the chances of incomplete abortion and spontaneous abortion were significantly high in the patients who had previous abortions.**

Table 5

Compares the Obstetric outcome between the controls and the cases A. The number of patients who reached full term among control group was

93.4% and cases were 64.6%. **The difference is statistically significant <0.001**. The number of patients who had previous abortions had a significantly lesser chance of continuing the pregnancy to full term B. The number of patients who delivered preterm among control group was 6.2 percent and among cases were 17.2 percent . **This is statistically significant**.

Similar study done by P.W.Reginald[44], R.W.Beard showed that 28 percent of patients having preterm with < 3 abortion in the previous pregnancies.

Olga Basso et al showed that there is increased incidence of preterm births in abortion cohort as compared to the reference cohort.

The percentage of patients who had PROM among control group was 11.4 percent and among cases were 31.8 percent.**The difference is statistically significant.<0.001**. Similar study done by Edem E.Ekno et al[14] showed in his study "Previous pregnancy outcome and subsequent risk to preterm rupture of amniotic sac membranes" that previous preterm delivery, abortion and prematurity all increase the risk for subsequent preterm birth with / without PROM.

Percentage of patients having IUGR in our cases group were 3.4

percent and which was more than 1.4% among the control group, but there was no statistical difference between these two (P=0.123). The studies done by David.K.Thomas et al showed that risk of IUGR and low birth weight increases as the number of abortions increases. With one prior spontaneous abortions 4.9 % and with three or more prior spontaneous abortions it was 9.5%.

Percentages of patients with post term pregnancies were 2 % among the cases group as compared to 0.6 % in the control group. The stillbirths among the cases group were 0.2% and among the control group was nil. The percentage of the patients who had IUD among the cases group was 3.2 % and among controls was 2%.

It is true per saying that risk of abortion increases with each subsequent loss. In the cases group 16.2% had repeated abortion, as compared to control group there were no **abortions. P< 0.001, statistically significant.**

Table 6

Shows the indication for LSCS/ Forceps among cases and controls. Among the cases group only 66.7% of patients had normal delivery where as among the control group majority 98.4% of patients had normal delivery.

The rest were delivered either by LSCS or by forceps delivery. **The difference is statistically significant. P< 0.001**

Table 7&8

Shows the comparison between the obstetric outcomes between the two groups

Table 9

Shows the comparison of pregnancy outcomes between patients having one previous abortion(cases group) and the patients having one previous live birth(control group). 70.8% of patients belonging to the cases group had full term deliveries, 67.1 % of patients belonging to the control group had full term deliveries. 33.3 percent had PROM among cases group whereas only 11.7 % of patients belonging to the control group had PROM**(P<0.001) which is statistically significant**. 8.7 percent of patients of patients belonging to the cases group had abortions and none had an abortion among control group**.p< 0.001 statistically significant**. 17.9% of patients belonging to the cases group had preterm deliveries whereas only 6.9% of patients belonging to the control group had preterm deliveries**.(P <0.001) which is statistically significant.** The percentage of IUGR, still

births between the two groups did not differ significantly. This shows that even patients having one previous abortion have significantly higher chances of preterm births, PROM and Abortion in the subsequent pregnancy.

Table 10

Shows the comparison of pregnancy outcomes between patients having previous two abortions(G3A2- Cases group) and having previous 2 live birth(G3P2L2 -Control group)94.8 percent of patients belonging to the control group had reached full term whereas only 50.6 percent of patients belonging to the cases group had reached full term, **P<0.001 which is statistically significant**. 17.9% of patients belonging to the

Cases group had preterm delivery whereas only 3.1% of patients belonging to the control group had preterm delivery**, P<0.001 which is statistically significant**. 31.5% of patients belonging to the cases group had PROM whereas only 8.2% of patients belonging to the control group had PROM**,P<0.001 which is statistically significant**. 30.3% of patients belonging to the cases group had abortions and there were no abortions among the control group**, P<0.001 which is statistically significant**. 5.6% of patients belonging to the cases group had IUGR and none belonging to

the control group had IUGR, P<0.024.Post term birth, and still birth were not significantly different between the two groups.

Table 11

Table 11 shows the comparison of pregnancy outcomes between patients having previous three abortion(G4A3-Cases group) and having previous 3 live birth(G4P3L3-control group).90 percent of patients belonging to the control group had full term deliveries whereas only 31.8 % of patients belonging to the cases group had full term deliveries, **P<0.002 which is statistically significant**. 63.8 % of patients belonging to the cases group had abortions whereas none of the patients belonging to the control group had abortions**, P<0.001 which is statistically significant**. Preterm, IUGR, PROM, post term still birth did not differ significantly between the two groups.

Table 12

Table 12 shows the comparison of pregnancy outcomes between patients having previous four abortion(G5A4-cases group) and having previous four live birth(G5P4L4-control group)100% of patients belonging to the control group had full term deliveries and only 27.3 % of patients belonging to the cases group had full term deliveries,P **<0.004 which is**

statistically significant. 63.6% of patients belonging to the cases group had abortions whereas there were no abortions in the control group**, P<0.013 which is statistically significant**. Preterm, IUGR,PROM, post term, still birth were not significantly different between the two groups.

Table 13

Shows the comparison between low birth weight and the number of previous live births among the control group. Among patients who had one previous delivery the incidence of low birth weight were 18.9 percent, and the mean birth weight was 2.77± 0.48kgs, among patients who had 2 previous live births the incidence of low birth weight was 21.6% and the mean birth weight of babies were 2.75±,0.42kgs, among patients who had 3 previous live births the incidence of Low birth weight were 30%and the mean birth weight of babies were 2.58 ± 0.48 kgs, among patients who had previous 4 live births the incidence of low birth weight were 19.8 percent and the mean birth weight of babies were 3.04± 0.79kgs**. It is seen clearly that the mean birth weight increases as the parity increases.**

Table 14

Shows the comparison between the number of previous abortions and the low birth weight among the cases group. Among patients who had one

previous abortion the incidence of low birth weight was 8.7% and the mean birth weight were 2.46± 0.95kgs. Among patients who had two previous abortions the incidence of low birth weight babies were 30.3 % and the mean birth weight was 1.73 ± 1.3 kgs. Among patients who had three previous abortions the incidence of low birth weight babies were 63.6 % and the mean birth weight was 0.98 ± 1.35 kgs, Among patients who had four previous abortions the incidence of low birth weight babies were 63.6% and the mean birth weight was 0.87 ± 1.35kgs**. The birth weight decreases as the number of previous abortions increases and that the incidence of low birth weight increases as the as the number of previous abortions increases.**

Table 15

Shows the comparison between the cases and the controls having pain abdomen, Discharge per vaginum and their obstetric outcome. 304 patients belonging to the control group had pain abdomen out of which 290 patients had FTND, only 5 had LSCS, 1 had assisted breech delivery, and one had out let forceps delivery, 7 had spontaneous expulsion, and none had abortion. 495 patients belonging to the cases group had pain abdomen out of which 223 patients had FTND, 162 patients had LSCS, 12 patients had

assisted breech delivery, 7 had outlet forceps delivery, 10 had spontaneous expulsion, 44 had incomplete abortion and 37 had spontaneous abortion. **This suggests that antenatal pain abdomen during the first trimester had very little significance in patients having no previous abortions, whereas in patients who has history of previous abortions about 16.36% of patients had abortions.**

58 patients belonging to the control group had discharge per vaginum out of which 50 patients had FTND, 4 patients had LSCS, 4 had spontaneous expulsion 217 patients belonging to the cases group had discharge per vaginum out of which 90 had FTND, 74 patients LSCS, 2 patients had assisted breech deliveries, 4 had spontaneous expulsions, 35 had incomplete abortions and 12 had spontaneous abortions. **This suggests that antenatal complaint of discharge Pervaginum has very little significance in the patients having no previous abortions. In patients who have history of previous abortions about 21.65% of patients had abortions.**

IX - CONCLUSION

1. Previous unfavourable pregnancy outcome increases the risk of adverse outcome in the future pregnancies
2. There is association between previous spontaneous abortion and preterm delivery(17.2%), Recurrence of abortion(16.2%) and PROM (31.8%), in the subsequent pregnancies
3. There is no statistically significant increase in the rate of IUGR, still birth, IUD in the subsequent pregnancies
4. As the number of previous abortions increase the incidence of successful outcome decreases. A striking feature of this study is that the incidence of abortion (8.7%), PROM (33.3%), and preterm (17.9%) were significantly higher in women who had history of previous one abortion as compared to women who had no abortions.
5. As the number of previous abortions increase the incidence of low birth weight increases.
6. The percentage of operative deliveries increases in the cases who had previous abortions .Previous abortions have a definite impact on the

successful outcome of future pregnancies hence history of one abortion in previous pregnancy should be investigated and treated.

ABREVATIONS

B.Wt	-	Birth Weight
D.O.D	-	Date of delivery
D/V	-	Discharge per vaginum
EDD	-	Expected date of delivery
FHS	-	Fetal heart sound
IUD	-	Intra uterine death
IUGR	-	Intra uterine Growth Retardation
IPI	-	Inter Pregnancy Interval
LM	-	Laparoscopy Myomectomy
LMP	-	Last Menstrual Period
LSCS	-	Lower Segment Caesarian Section
MOD	-	Mode of delivery
PROM	-	Premature Rupture of Membranes
P/A	-	Pain abdomen

PROFORMA

Name : **Age:** **Occupation:**

Social Status: **Address:**

Date of admission: **Date of Discharge:**

Inpatient number : **Outpatient number:**

History

Marital History:

Menstrual History L.M.P E.D.D

Obstetric History

Past obstetric history

Past History

Medical : Diabetes, Hypertension, Renal disease, SLE, Rh Arthritis, Cardiac disease,

Asthma, Epilepsy.

Past surgical history

Family history

H/O congenital anomalies, H/O twins

H/O Diabetes mellitus, hypertension, tuberculosis, asthma, epilepsy.

Personal history

General examination

Systemic examination:

Cardio vascular system

Respiratory system

Per abdomen

Inspection

Palpation-

Height of uterus, State of uterus relaxed/contracting,Abdominal girth (cms),

symphysio fundal height (cms)

Fundal grip

Umbilical grip

First pelvic grip

Second pelvic grip

Auscultation

Pelvic examination

Labour

Mode of labour Duration of labour Outcome

Date of delivery Sex of baby Time

Weight Apgar

Abnormalities

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